BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF APPEALS AND INTERFERENCES

First Named Inventor	:	Michael R. Longe
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Commissioner of Patents & Trademarks
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BRIEF ON APPEAL

Applicant's Appeal Brief follows.

TABLE OF CONTENTS

APPENDICES

REAL PARTY IN INTEREST

This patent application was assigned to America Online Incorporated by assignment recorded in the U.S. Patent & Trademark Office on October 1, 2003 at Reel/Frame 014605 / 0037.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known to be related to the subject patent application.

STATUS OF CLAIMS

1. Claims 1-37, 40-41, 43-64, 66-76 stand rejected by the final office action dated April 28, 2006 ("the office action"). These claims are the subject of this appeal.

2. Claims 38-39, 42, 65 were previously canceled.

STATUS OF AMENDMENTS

No amendments have been made after final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Concise Explanation of Subject Matter

As recommended by MPEP 1206, the following summary of the invention comprises reading of each appealed independent claim on the drawings and specification, to enable the Board to more determine where the claimed subject matter appears in the application. This particular reading is not intended to limit the claims in

any way. For ease of reference, all Figures of Applicants' drawings are shown in the attached Appendix.

Claim 1

A text entry input system (ref. 100, FIG. 1; page 6, lines 2-11), comprising:

a direction selector (refs. 110, 130, FIG. 1; page 6, lines 15-16; page 6, line 1 – page 8, line 12) to individually point (ref. 700, FIG. 7; page 3, lines 11-13) in a direction of letters (ref. 130, FIG. 2; ref. 302/304, FIGS. 3 & 5; page 4, lines 1-2; page 9, line 4 – page 11, line 8; page 16, lines 8-12) to collectively form an intended linguistic object, where each letter comprises a linguistic object subcomponent; (page 8, lines 13-20)

a collection of linguistic objects; (ref. 150, FIG. 1; page 6, lines 15-18; page 8, lines 13-20)

an output device with a text display area; (ref. 120, FIG. 1; page 6, line 17)

a processor, comprising: (ref. 140, FIG. 1; page 6, lines 17-23)

a difference (page 4, lines 2-6; page 16, lines 13-17; page 20, lines 7-16) calculation module (ref. 144, FIG. 1; page 6, lines 19-21) configured to output, for each act of pointing, various letters and associated weight values (ref. 706, FIG. 7) based upon factors including at least an angular difference between an actual direction indicated by the directional selector and pre-assigned directions of said letters; (page 4, lines 2-4; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5; page 20, lines 7-21)

an object search engine (ref. 142, FIG. 1; page 6, line 19) configured to construct a predicted list of linguistic objects based on the output letters and weight values; (ref. 708, FIG. 7; page 16, lines 6-7)

a selection component (ref. 150, FIG. 1; page 6, line 21) to facilitate user selection of a desired linguistic object from the predicted list of linguistic objects. (ref. 148, FIG. 1; page 3, lines 13-15; page 4, lines 6-7; page 13, lines 18-21)

Claim 32

A text input method (FIG. 7; page 17 – page 21, line 17) using a directional input device (refs. 110, 130, FIG. 1; page 6, lines 15-16; page 6, line 1 – page 8, line 12), wherein each direction entered corresponds, directly or indirectly, to one or more linguistic object subcomponents according to a predetermined mapping (ref. 130, FIG. 2; ref. 302, FIGS. 3 & 5; page 4, lines 1-2; page 8, lines 13-20, page 9, line 4 – page 11, line 8; page 16, lines 8-12), said method comprising the steps of:

for each user act of pointing the directional input device (ref. 700, FIG. 7; ref. 700, FIG. 7; page 3, lines 11-13), preparing an output of candidate linguistic object subcomponents and associated probability weightings (ref. 706, FIG. 7) based upon factors including at least an angular difference between directions indicated by the directional input device and pre-assigned directions of said linguistic object subcomponents according to the predetermined mapping; (ref. 144, FIG. 1; ref. 706, FIG. 7; page 4, lines 2-6; page 16, lines 13-17; page 20, lines 7-16)

an object search engine (ref. 142, FIG. 1) configured to utilize the output to retrieve from the database a list (ref. 708, FIG. 7) of predicted linguistic objects potentially representative of the user-submitted directions; (page 16, lines 6-7)

a linguistic object module programmed to utilize at least one predetermined linguistic model to order said list of potential linguistic objects according to likelihood of intended selection by the user; (ref. 146, FIG. 1; page 3, lines 20-21; page 11, lines 9-12; page 8, lines 21 – page 9, line 3)

a selection component (ref. 150, FIG. 1; page 6, line 21) to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects. (ref. 148, FIG. 1; page 3, lines 13-15; page 4, lines 6-7; page 13, lines 18-21)

Claim 63

A text entry input module ref. 100, FIG. 1; page 6, lines 2-11) for use with user interface components including a direction indicator (refs. 110, 130, FIG. 1; refs. 110, 130, FIG. 1; page 6, lines 15-16; page 6, line 1 – page 8, line 12) and a output device (ref. 120, FIG. 1; page 6, line 17) with a text display area, the text entry input module comprising:

a database of linguistic objects; (ref. 150, FIG. 1; page 6, lines 15-18; page 8, lines 13-20)

a predetermined set of linguistic object subcomponents; (page 8, lines 13-20)

where a predetermined relationship exists between said linguistic object subcomponents and different assigned angular directions of the direction indicator; (ref. 130, FIG. 2; ref. 302, FIGS. 3 & 5; page 9, line 18 – page 10, line 10)

a calculation module (ref. 144, FIG. 1) to apply the predetermined relationship to each user-submitted direction entered via the direction indicator to provide an output, said output including: (1) multiple predicted linguistic object subcomponents including a group of linguistic object subcomponents whose assigned angular directions are nearest the user-submitted directions, and (2) for each predicted linguistic object subcomponent, an associated proximity weighting proportional to an angular difference between the user-submitted direction and the angular direction assigned to the predicted linguistic object subcomponent; (ref. 144, FIG. 1; ref. 708, FIG. 7; page 4, lines 2-6; page 6, lines 19-21; page 16, lines 13-17; page 20, lines 7-16)

an object search engine (ref. 142, FIG. 1; page 6, line 19) configured to utilize the output to retrieve from the database a list of predicted linguistic objects potentially representative of the user-submitted directions; (ref. 708, FIG. 7; page 16, lines 6-7)

a linguistic object module (ref. 146, FIG. 1; page 3, lines 20-21; page 11, lines 9-12; page 8, lines 21 – page 9, line 3) programmed to utilize at least one predetermined linguistic model to order said list of potential linguistic objects according to likelihood of intended selection by the user;

a selection component (ref. 150, FIG. 1; page 6, line 21) to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects. (ref. 148, FIG. 1; page 3, lines 13-15; page 4, lines 6-7; page 13, lines 18-21)

Claim 64

A text entry input module (ref. 100, FIG. 1; page 6, lines 2-11) for use with user interface components including a direction indicator (refs. 110, 130, FIG. 1; refs. 110,

130, FIG. 1; page 6, lines 15-16; page 6, line 1 – page 8, line 12) and an output device (ref. 120, FIG. 1; page 6, line 17) with a display, the text entry input module comprising:

a vocabulary database of linguistic objects; (ref. 150, FIG. 1; page 6, lines 15-18; page 8, lines 13-20)

a mapping between angular directions of the direction indicator and linguistic object subcomponents; (ref. 130, FIG. 2; ref. 302, FIGS. 3 & 5; page 9, line 18 – page 10, line 10)

a calculation module (ref. 144, FIG. 1) to apply the mapping to each user-submitted direction entered via the direction indicator to provide an output including: multiple potentially user-intended linguistic object subcomponents and associated proximity weightings; (ref. 144, FIG. 1; ref. 708, FIG. 7; page 4, lines 2-6; page 6, lines 19-21; page 16, lines 13-17; page 20, lines 7-16)

an object search engine (ref. 142, FIG. 1; page 6, line 19) configured to retrieve a list of predicted linguistic objects from the vocabulary database based upon said calculation module output; (ref. 708, FIG. 7; page 16, lines 6-7)

a linguistic object module (ref. 146, FIG. 1; page 3, lines 20-21; page 11, lines 9-12; page 8, lines 21 – page 9, line 3) programmed to utilize a linguistic model to order said list of predicted linguistic objects according to likelihood of intended selection by the user; and (page 11, lines 9-12)

a selection component (ref. 150, FIG. 1; page 6, line 21) to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects. (ref. 148, FIG. 1; page 3, lines 13-15; page 4, lines 6-7; page 13, lines 18-21)

Claim 66

A computer readable storage medium tangibly embodying a program of instructions executable by a digital data processing machine (ref. 140, FIG. 1; page 6, lines 13-23) to perform text input operations (FIG. 7; page 17 – page 21, line 17) comprising:

receiving machine-readable signals representing a series of user-submitted directional inputs entered via a directional input tool, the series having an order; (refs. 110, 130, FIG. 1; ref. 700, FIG. 7; page 6, line 1 – page 8, line 12; page 17 – page 21, line 17

for each user-submitted directional input, based upon that directional input alone, estimating multiple corresponding subcomponents that the user might have intended by such directional input, and providing a weighting value that the user intended each such subcomponent; (ref. 144, FIG. 1; 706, FIG. 7; page 4, lines 2-6; page 6, lines 19-21; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5 & 13-17; page 20, lines 7-21)

assembling the different ones of the estimated subcomponents to construct multiple different proposed linguistic objects that the user might have intended by the series of directional inputs, where each proposed object includes one estimated subcomponent for each user-submitted directional input, the subcomponents occurring in the proposed object in the same order as the series of user-submitted directional inputs; (ref. 142, FIG. 1; ref. 708, FIG. 7; ref. 142, FIG. 1; page 6, line 19; page 16, lines 6-7)

facilitating selection of a desired one of the proposed objects. (ref. 148, FIG. 1;

ref. 150, FIG. 1; page 3, lines 13-15; page 4, lines 6-7; page 6, line 21; page 13, lines 18-21)

Claim 76

A computer (ref. 100, FIG. 1; page 6, lines 2-11), programmed to facilitate operations for text entry, the operations comprising:

by using a joystick (refs. 110, 130, FIG. 1; page 6, lines 15-16; page 6, line 1 – page 8, line 12) having predefined mapping (ref. 130, FIG. 2; ref. 302, FIGS. 3 & 5; page 4, lines 1-2; page 8, lines 13-20, page 9, line 4 – page 11, line 8; page 16, lines 8-12) between different actual radial directions and different text characters, a user sequentially pointing (ref. 700, FIG. 7; page 3, lines 11-13) in an intended radial direction toward intended characters of at least part of an intended word;

the computer determining angular similarity between each actual pointing direction and radial directions of different characters in the mapping, and using the determined angular similarity to compute different possible combinations of intended characters that could form the intended word and their associated likelihoods, and presenting a list of potential matching words to the user, where the presentation favors potential matching words according to factors including an aggregate angular similarity of constituent characters of a potential matching word to the actual pointing directions; (ref. 144, FIG. 1; ref. 706, FIG. 7; page 4, lines 1-7; page 6, lines 19-21; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5 & 13-17; page 20, lines 7-21)

the user selecting the intended word from the list; (ref. 224, FIG. 2; page 3, lines 13-15; page 6, lines 9-11)

the computer displaying the selected word in a human-readable message composition display area. (ref. 220, FIG. 2; page 3, lines 6-9, 15, 18-19; page 6, lines 5, 10-11, 17)

Identification of Means Plus Function & Step Plus Function Claims

In accordance with 37 CFR 47.37(c)(1)(v), the following is an identification of all independent and separately argued dependent claims in means (or step) plus function as permitted by 35 USC 112 para. 6:

None.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Applicant appeals each of the following rejections applied in the final office action dated April 28, 2006:

- Claims 1-37, 40-41, 43-63, 70, 72-73, 76 were rejected under 35 USC 112, first paragraph, as constituting new matter.
- Claims 1-37, 40-41, 43-63 were rejected under 35 USC 112, second paragraph, as being indefinite.
- Claim 64 was rejected as being obvious under 35 USC 103(a).
- Claims 66-69, 71, 74-75 were rejected as being obvious under 35 USC 103(a).

GROUPING OF CLAIMS

The claims do not stand or fall together. The groupings of claims, which are independently patentable are as follows:

- One group including claims 1-31.
- Another group including claims 32-37, 40-41, 43-62.
- Another group including claim 63.
- Another group including claim 64.
- Another group including claims 66-68, 74-75.
- Another group including claim 69.
- Another group including claim 70.
- Another group including claim 71.
- Another group including claim 72.
- Another group including claim 73.
- Another group including claim 76.

ARGUMENT

Subparagraph (i) -- 35 USC 112, FIRST PARAGRAPH

Claims 1-37, 40-41, 43-63, 70, 72-73, and 76 were rejected under 35 USC 112, first paragraph, as constituting new matter. It was alleged that the claims contain subject matter not adequately described in the specification. [Office Action: page 4] Applicant disputes this rejection.

The following list illustrates where each item of allegedly unsupported subject matter identified by the Examiner is described in Applicant's original specification and drawings:

- (claims 1, 63) "difference calculation module..." : An example of this teaching is page 4, lines 2-6; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5 &

13-17; page 20, lines 7-21, and ref. 144 of FIG. 1. The specification discusses a "distance calculation module," yet it is clear that this distance is an angular distance, and hence Applicant has elected to set forth this feature as a "difference calculation module".

- (claims 1, 63) "angular difference" : An example of this is discussed at page 20, lines 7-16 and page 12, lines 1-5
- (claims 1, 63) "actual direction of pointing" : An example of this is discussed at page 20, lines 17-21. Further discussion occurs at refs. 110, 130, FIG. 1; ref. 130, FIG. 2; ref. 302/304, FIGS. 3 & 5; ref, 700, FIG. 7; page 3, lines 11-13; page 4, lines 1-2; page 6, line 1 – page 8, line 12; page 9, line 4 – page 11, line 8; page 16, lines 8-12; page 8, lines 13-20.
- (claims 1, 63) "pre-assigned direction of letters" : An example of this teaching is page 4, lines 2-4; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5; page 20, lines 7-21.
- (claim 70) "providing a weighting value.." : An example of this teaching occurs at ref. 706, FIG. 7 and page 4, lines 2-4; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5; page 20, lines 7-21.
- (claim 70) angular proximity : An example of this teaching occurs at page 20, lines 7-16 and page 12, lines 1-5.
- (claim 70) actual user-submitted directional input : An example of this is discussed at page 20, lines 17-21. Further discussion occurs at refs. 110, 130, FIG. 1; ref. 130, FIG. 2; ref. 302/304, FIGS. 3 & 5; ref, 700, FIG. 7; page 3, lines 11-13; page 4, lines 1-2; page 6, line 1 – page 8, line 12; page 9, line 4 – page

11, line 8; page 16, lines 8-12; page 8, lines 13-20.

- (claim 70) directional input exactly mapped to the subcomponent : An example of this teaching is page 20, line 19.
- (claim 72) narrowing the displayed pie wedge and corresponding range in proportion to magnitude of the directional input : An example of this teaching is step 706 of FIG. 7 and ref. 502 of FIG. 5 and page 10, line 22 – page 11, line 8.
- (claim 73) linguistic object subcomponents occupy greater angular ranges responsive to factors including greater frequency of general usage : An example of this teaching is page 10, lines 5-7. This is also taught by FIG. 5 where, for example, the letters "e" and "s" each occupy a greater angular range than letters such as "q" and "z."
- (claim 76) "determined angular similarity" : An example of this teaching occurs at page 20, lines 7-21.

Accordingly, the stated rejection should not stand, and Applicant requests that it be reversed.

Subparagraph (ii) -- 35 USC 112, SECOND PARAGRAPH

Claims 1-37, 40-41, 43-63 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. [Office Action: page 5] In particular, the Examiner stated that it was not clear "how to introduce pre-assigned directions of letters without disclosing where is the starting direction." [Office Action: page 5] Applicants do not understand the point of this statement, and the office action failed to supply any

more detail as to what was intended. Applicant is confused by the office action's suggestion of a "starting direction." The application, for example, already contains a clear description of the actual direction of pointing (for example at page 20, lines 17-21; refs. 110, 130, FIG. 1; ref. 130, FIG. 2; ref. 302/304, FIGS. 3 & 5; ref, 700, FIG. 7; page 3, lines 11-13; page 4, lines 1-2; page 6, line 1 – page 8, line 12; page 9, line 4 – page 11, line 8; page 16, lines 8-12; page 8, lines 13-20) and the pre-assigned directions of letters (for example at (page 4, lines 2-4; page 12, lines 1-5; page 13, lines 16-18; page 16, lines 4-5; page 20, lines 7-21).

Accordingly, the stated rejection is without merit and Applicant requests that it be reversed.

Subparagraph (iii) -- 35 USC 102

No grounds of rejection exist under this subparagraph.

Subparagraph (iv) -- 35 USC 103 REJECTIONS

Claim 64: Introduction

The Office Action rejected claim 64 under 35 USC 103(a) as being unpatentable over the combination of U.S. Patent No. 6,567,072 ("Watanabe"), U.S. Patent No. 6,654,733 B1 ("Goodman"), and U.S. Patent No. 6,002,390 ("Masui"). The claims are patentable since there a *prima facie* case of obviousness does not exist, as discussed in greater detail below.[1]

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[1] MPEP 2142.

Claim 64: Teaching/Suggestion of Claim Limitations

First, the *prima facie* obviousness case is incomplete because, even if the references were to be combined as suggested (albeit improperly, as discussed below), the combination still does not teach or suggest all the claim limitations.[2] To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.[3]

All words in a claim must be considered in judging the patentability of that claim against the prior art.[4] The proposed combination of references fails to teach the combination set forth by claim 64:

> A text entry input module for use with user interface components including a direction indicator and an output device with a display, the text entry input module comprising:
> a vocabulary database of linguistic objects;
> a mapping between angular directions of the direction indicator and linguistic object subcomponents;
> a calculation module to apply the mapping to each user-submitted direction entered via the direction indicator to provide an output including: multiple potentially user-intended linguistic object subcomponents and associated proximity weightings;
> an object search engine configured to retrieve a list of predicted linguistic objects from the vocabulary database based upon said calculation module output;
> a linguistic object module programmed to utilize a linguistic model to order

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2 MPEP 2142, 2143.03.

3 *Ex Parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). MPEP 706.02(j).

4 *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). MPEP 2143.03.

said list of predicted linguistic objects according to likelihood of intended selection by the user; and

a selection component to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects.

Considering claim 64 in greater detail, the applied art fails to disclose "a mapping between angular directions of the direction indicator and linguistic object subcomponents." The office action cites to Watanabe to supply this feature. [Office Action: page 6] With Watanabe, however, characters do not have different assigned angular directions. Rather, Watanabe's user first selects a character set, such as Hiragana, Katakana, alphanumeric, symbol, etc. [Watanabe: FIG. 5A] The character set is selected by (1) degree that the stick is lowered, or (2) load applied to the stick. [Watanabe: col. 8, lines 30-35; FIGS. 5B-5C] Characters of a certain character set are selected by rotating the stick 3 in a circumferential direction. [Watanabe: col. 9, lines 1-35] Thus, Watanabe lacks the predetermined relationship between linguistic object subcomponents and angular directions, as claimed.

The applied art further lacks "a calculation module to apply the mapping [between angular directions of the direction indicator and linguistic object subcomponents] to each user-submitted direction entered via the direction indicator to provide an output including: multiple potentially user-intended linguistic object subcomponents and associated proximity weightings." The office action admits that this feature is missing from Watanabe. [Office Action: page 6] Yet, the office action suggests that it is taught by Goodman. [Office Action: page 7] Goodman is aimed at soft keyboard technology [Goodman: FIG. 2; col. 1, lines 45-57] Along these lines, Goodman's focus is "key press events," rather than indications of direction. [Goodman:

col. 1, line 60 – col. 2, line 7] As Goodman does not teach a directional indicator, and similarly fails to teach applying the mapping [between angular directions of the direction indicator and linguistic object subcomponents] to user-submitted directions entered via the direction indicator.

The office action proposed that Goodman teaches a calculation module at Fig. 1, item 21, Fig. 3, item 204, and Col. 9, lines 21-62. A careful review of these passages helps clarify that Goodman does not, in fact, teach the claimed feature. Rather, item 21 of Fig. 1 simply shows a processing unit, and item 204 of Fig. 3 merely shows a text entry box of a user device 400. [Goodman: col. 6, lines 13-28] The cited passage of column 9 addresses a detailed calculation by which an intended-to-have-been-typed key sequence is hypothesized. [Goodman: col. 8, lines 5-10] However, Goodman is devoid of any discussion of a directional indicator, and further fails to mention the application of mapping between angular directions of the direction indicator and linguistic object subcomponents to user-submitted directions entered via such a direction indicator.

The applied art also lacks "an object search engine configured to retrieve a list of predicted linguistic objects from the vocabulary database based upon said calculation module output" as claimed. The office action cited Watanabe as providing this feature. [Office Action: page 6] However, Watanabe has no need to predict any list of linguistic objects because Watanabe's user selects the exact character desired through intricate manipulation of the circumferential position and radial position/load of a joystick along with key entry. [Watanabe: col. 9, lines 29-35, 41-47.] Therefore, Watanabe does not show a list of predicted linguistic objects, as claimed. In Watanabe, circumferential and

radial joystick positions correspond to row and column of a currently selected symbol table, e.g., Hiragana, Alphanumeric, Katakana, etc. [Watanabe: FIGS. 5a-5c] A further example is discussed at Watanabe's col. 9, lines 18-48, and FIG. 8a. The claimed "object search engine" avoids the unduly intricate approach of Watanabe in various ways, such as by avoiding the necessity of achieving precise joystick tilt in order to enter characters.

The office action suggests that Watanabe might provide the claimed feature at col. 9, lines 1-17. [Office Action: page 6] Still, Watanabe's own words reveals otherwise, and further serve to underscore Watanabe's failure to teach the claimed feature. In particular, the cited passage merely discusses certain details of Watanabe's mapping between cursor manipulation and character selection. For example, Watanabe is said to use five concentric circles each divided into 12 sectors of 30 degrees each, and at the intersection of the radially extended sector lines and each concentric circle, when the Hiragana character set is selected, the rows "a through wa" are mapped clockwise, and in the case of the row "a", "a through u" are mapped at the intersection of a radially extending line and each concentric circle. [Watanabe: col. 9, lines 9-17] Lacking from the cited passage is any disclosure of the claimed combination including "an object search engine configured to retrieve a list of predicted linguistic objects from the vocabulary database based upon said calculation module output" as claimed.

In view of the foregoing, claim 64 is patentably distinguished from the cited combination of Watanabe, Goodman, and Masui.

Claim 64: Suggestion or Motivation

In addition to the reasons given above, the *prima facie* obviousness case is also defective because there has been no suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.[5]

The office action proposed that it would have been obvious to incorporate Goodman into Watanabe in order to determine a most likely intended-to-be-typed keystroke. [Office Action: page 7] This is nearly a direct recitation of Goodman's stated benefit. And, although this may help to indicate the desirability of using Goodman's system alone, there is nothing to show why it would be desirable, feasible, or even useful to have such a feature in Watanabe. Just because one reference might tout the benefit of diesel engines, this mere fact does not indicate that it would be beneficial to incorporate such teachings into second reference describing a ball point pen. This would be ridiculous. In the same way, proposing to incorporate the benefit of Goodman's teachings (i.e., to determine a most likely intended-to-be-typed keystroke) into Watanabe is simply untenable because Watanabe already uses tilt and circumferential direction of a stick in lieu of keystrokes. [Watanabe: FIG. 5A; col. 8, lines 30-35; FIGS. 5B-5C; col. 9, lines 18-48, 29-35, 41-47; FIG. 8a]

Accordingly, the *prima facie* obviousness case is defective because there has been no legally sufficient suggestion or motivation to combine reference teachings.

Rather, than any legally meritorious case for combining Watanabe and

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5 MPEP 2142.

Goodman, the proposed modification of Watanabe to provide the features of the present invention is simply a result of hindsight reconstruction. However, it is improper to attempt to establish obviousness by using the applicant's specification as a guide to combining different prior art references to achieve the results of the claimed invention.6 The teaching or suggestion to make the claimed combination must be found in the prior art, and not based on applicant's disclosure.[7] The critical inquiry is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.[8] Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art."[9] But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination."[10] And "teachings of references can be combined only if there is some suggestion of incentive to do so."[11]

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6 *Orthopedic Equipment Co., Inc. v. United States*, 702 F.2d 1005, 1012, 217 USPQ 193, 199 (Fed. Cir. 1983).

7 *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

8 *In re Fritch*, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992) ("It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious."); *Fromson v. Advance Offset Plate, Inc.*, 755 F.2d 1549, 1556, 225 USPQ 26, 31 (Fed. Cir. 1985) (nothing of record plainly indicated that it would have been obvious to combine previously separate lithography steps into one process). See e.g., *In re Gordon et al.*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (mere fact that prior art could be modified by turning apparatus upside down does not make modification obvious unless prior art suggests desirability of modification); *Ex Parte Kaiser*, 194 USPQ 47, 48 (Pat. Bd. of App. 1975) (Examiner's failure to indicate anywhere in the record his reason for finding alteration of reference to be obvious militates against rejection).

9 *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

10 *ACS Hosp. Sys. Inc. v. Montefiore Hosp.*, 32 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

11 *Id.*

"To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher."[12] It is essential that "the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made. . . to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art."[13]

The policy of the Patent and Trademark Office14 is to follow in each and every case the standard of patentability enunciated by the Supreme Court in *Graham v. John Deere Co.*[15] As stated by the Supreme Court:

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.[16]

Thus, hindsight reconstruction, using the applicant's specification itself as a guide, is

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12 *W. L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

13 *Id.*

14 MPEP 2141.

15 148 USPQ 459 (1966).

16 148 USPQ at 467.

improper because it fails to consider the subject matter of the invention "as a whole" and fails to consider the invention as of the date at which the invention was made.

Accordingly, the *prima facie* obviousness case is defective because there has been no legally sufficient suggestion or motivation to combine reference teachings. When evidence is submitted to rebut a prima facie case of obviousness, the decision maker must consider all of the evidence anew.17

Claim 64: Reasonable Expectation of Success

In addition to the reasons stated above, the *prima facie* obviousness case is further defective because the office action failed to show that there would be a reasonable expectation of success in modifying/combining references.[18] The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness.[19] If the examiner does not produce a prima facie case, the applicant is under *no* obligation to submit evidence of nonobviousness.[20] Critically, to establish a *prima facie* case of obviousness, *there must be a reasonable expectation of success.*[21] This reasonable expectation of success must be found in the prior art, not in Applicant's disclosure.[22]

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17 In re Rinehart, 531 F.2d 1048, 1052 (CCPA 1976).

18 MPEP 2142, 2143.02.

19 MPEP 2142.

20 *Id.*

21 MPEP 2143.

22 *In re Vaeck*, 947 F.2d 488, 20 USPQ.2d 1438 (Fed. Cir. 1991). MPEP 2143.

The office action lacks any evidence, allegation, or other mention of the legally required "reasonable expectation of success." Since this mandatory topic is unaddressed by the office action, no *prima facie* case of obviousness has been properly established.

Furthermore, for a number of reasons, an ordinarily skilled artisan would not enjoy reasonable prospects of success in combining Goodman with Watanabe.

As one example, Watanabe and Goodman have incompatible goals. Watanabe seeks to provide an environment where the input of Japanese language characters can be simply carried out on a small apparatus which has few input means and where character input can be carried out only with one hand in an environment that does not allow the use of both hands, and where it is possible to select characters by the movements of a finger without selecting characters form a character chart displayed on the screen. [Watanabe: col. 3, lines 44-68] Although Goodman's objectives are not expressly stated, Goodman clearly concerns soft (fuzzy) or real keyboards (e.g., FIG. 3), and seeks to determine the most-likely-to-be-intended keystrokes to accommodate user typing error. [Goodman: Abstract] In any case, Goodman is not particularly suited to one-handed use, and necessarily relies on selecting characters from a chart displayed on the screen (FIG. 3). Along these lines, the Watanabe and Goodman references employ completely different and inconsistent approaches.

Accordingly, these fundamental differences suggest that there is a poor expectation of success to be realized by combining the references. Accordingly, since an ordinarily skilled artisan would not realize reasonable prospects of success in combining Goodman with Watanabe, the *prima facie* case of obviousness is lacking.

Claim 64: Conclusion

As shown above, then, this claim is patentable since a *prima facie* case of obviousness does not exist. Namely, (1) the applied art fails to teach the features of the claims, (2) there is insufficient motivation to combine/modify references as proposed by the office action, and (3) there is no showing that an ordinarily skilled artisan would have a reasonable expectation of success in making the office action's proposed modification of references.

Claims 66-69, 71, 74-75: Introduction

The Office Action rejected these claims under 35 USC 103(a) as being unpatentable over the combination of U.S. Patent No. 6,765,554 ("Millington") in view of Goodman. The claims are patentable since there a *prima facie* case of obviousness does not exist, as discussed in greater detail below.

Claims 66-69, 71, 74-75: Teaching/Suggestion of Claim Limitations

First, the *prima facie* obviousness case is incomplete because, even if the references were to be combined as suggested (albeit improperly, as discussed below), the combination still does not teach or suggest all the claim limitations. As mentioned above, to support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the

teachings of the references.

Taking claim 66 as an example, the proposed Millington/Goodman combination fails to teach the following combination:

> A computer readable storage medium tangibly embodying a program of instructions executable by a digital data processing machine to perform text input operations comprising:
> receiving machine-readable signals representing a series of user-submitted directional inputs entered via a directional input tool, the series having an order;
> where directional inputs of the directional input tool correspond to different linguistic object subcomponents according to a predetermined mapping;
> for each user-submitted directional input, based upon that directional input alone, estimating multiple corresponding subcomponents that the user might have intended by such directional input, and providing a weighting value that the user intended each such subcomponent;
> assembling the different ones of the estimated subcomponents to construct multiple different proposed linguistic objects that the user might have intended by the series of directional inputs, where each proposed object includes one estimated subcomponent for each user-submitted directional input, the subcomponents occurring in the proposed object in the same order as the series of user-submitted directional inputs;
> facilitating selection of a desired one of the proposed objects.

As a more particular example, claim 66 is patentably distinguishable from the applied art because the applied art does not show the claimed combination including "for each user-submitted directional input, based upon that directional input alone, estimating multiple corresponding subcomponents that the user might have intended by such directional input, and providing a weighting value that the user intended each such subcomponent." Dividing this feature into separate parts, the office action alleged that Goodman (Fig. 1 item 21, Fig 3 item 204, col. 9, lines 21-62) teaches "providing a weighting value that the user intended each such subcomponent" and Millington (Figs. 5-6, items 52, 66, 100 and col. 5, lines 10-27) teaches the rest. As to this technique, which focuses on the obviousness of substitutions and differences instead of on the

invention as a whole, this is a legally improper way to simplify the difficult determination of obviousness."[23]

Despite this, Millington's own words reveal that Millington has nothing to do with this feature. Although Millington purportedly shows directional inputs (e.g., Figs. 3-4; col. 3, line 66 - col. 4, line 5) Millington does not estimate multiple corresponding subcomponents that the user might have intended each such subcomponent. Rather, Millington implements certain techniques to specifically avoid any estimation.

First, Millington provides an eight way button, where each directional arrow corresponds to a pre-determined direction shown on the display device. [Millington: Fig. 3-4; col. 3, line 66 - col. 4, line 5] With eight symbols around the periphery of each group (e.g., symbols a, b, c, d, f, g, h, and i of group 58a in Fig. 2), there is a one-to-one mapping between directional arrows and peripheral symbols. The ninth (central) symbol is selected by selection symbol without requiring any directional input, so it does not require any directional arrow. [Millington: col. 4, line 56 – col. 5, line 9]

Second, Millington avoids performing any estimation by forcing Millington's user to positively identify each selected symbol. Millington uses a plurality of groups 116a-116g arranged around a start position 118. Each group 116 is located in a unique, pre-determined direction 120a through 120g relative to the start position 118. Each group 116 includes a plurality of symbols 122. The symbols 122 in each group 116 are arranged around a central position 126, which also comprises a symbol 122, in the group 116. [Millington: col. 4, lines 11-39; Fig. 2] A user selects the first letter of the

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[23] Richard Ruiz and Foundation Anchoring Systems, inc., v. A.B. Chance Company, 234 F.3d 654, 665 (Fed. Cir. 2000).

desired destination city by moving the directional input device 26 in the pre-determined direction 62 associated with the group 58 containing the desired letter. This sends a first directional signal from the directional input device 26 to the display device 24. The central position 70 of the group 58 located in the pre-determined direction 62 is then activated. Activation of the central position 70 activates the group 58. If the user wishes to select the symbol 66 located at the central position 70 of the activated group 58, the user sends a selection signal from the directional input device 26 to the display device 24. The selected symbol 66 is then displayed in the type field 52. If the user does not wish to select the symbol 66 located at the central position 70, then the user moves the directional input device 26 in one of the pre-determined directions 62 and thereby sends a second directional signal to the display device 24. The symbol 66 located in the direction relative to the central position 70 associated with the second directional signal is then activated. If the user then sends a selection signal, the activated symbol 66 is selected and is displayed in the type field 52. [Millington: col. 4, line 56 – col. 5, line 9] After each selection signal is transmitted, the start position 60 is again activated and another symbol 66 can be selected. Thus, any symbol 66 in any group 58 shown in the display device 24 can be selected with a maximum of three key strokes. The maximum three key strokes are a first directional signal, a second directional signal, and a selection signal. [Millington: col. 5, lines 46-53] Accordingly, Millington avoids performing any estimation by forcing Millington's user to positively identify each selected symbol.

Third, instead of using estimating user intent, Millington exhibits a further approach to specifically designed to avoid estimation. Specifically, in advance of user

selection, Millington limits the user's choices to certain "enabled" symbols and disabling the rest. [Millington: col. 4, lines 11-39] Namely, as the user enters each symbol in a sequence, Millington applies a filter to disable symbols that would cause the sequence to diverge from a pre-arranged list of symbol sequences in a database. One example is given where the user has selected as a first symbol 122 the letter "A" and that the list of city names available in the database 28 that begin with the letter "A" consists of "alpha," "alto," and "amy." After the user has selected as the first symbol 122 the letter "A," the comparator 100 in conjunction with the CPU 22 determines that the three possible city names that begin with the letter "A" consist of alpha, alto, and amy. The city name alpha will be displayed in the selection field 112 with the cursor 130 located adjacent to the letter "A." The filter 104 will then convert the symbols 122 "L" and "M" into enabled symbols 128 and convert all the other symbols 122 into disabled symbols 132. A user will not be able to select any symbol 122 other than the enabled symbols 128. If the user then selects the letter "L" as the second symbol 122, the letter "M" will be converted by the filter 104 into a disabled symbol 132 and the letters "P" and "T" will be converted from disabled symbols 132 into enabled symbols 128. [Millington: col. 6, line 40 – col. 7, line 10]

Thus, Millington clearly does not teach "for each user-submitted directional input, based upon that directional input alone, estimating multiple corresponding subcomponents that the user might have intended by such directional input..." as claimed.

Although Goodman uses some form of the word "weight" on four occasions, there is absolutely no teaching that Goodman alone provides a weighting value that the

user intended each of multiple subcomponents estimated (based on directional input alone) for each user-submitted directional input. And, since Millington does not perform any estimation as discussed above, the proposed addition of Goodman to allegedly teach "providing a weighting value that the user intended each such subcomponent" is superfluous.

The applied art further fails to teach "assembling the different ones of the estimated subcomponents to construct multiple different proposed linguistic objects that the user might have intended by the series of directional inputs, where each proposed object includes one estimated subcomponent for each user-submitted directional input, the subcomponents occurring in the proposed object in the same order as the series of user-submitted directional inputs." Lacking any estimated subcomponents (as discussed above), the applied art fails to teach the claimed feature. Moreover, Millington specifically teaches a contradictory approach. Instead of assembling different ones of the estimated subcomponents to construct multiple different proposed linguistic objects that the user might have intended by the series of directional inputs, Millington forces the user to positively identify each selected symbol. [Millington: col. 5, lines 46-53] The office action proposes Millington's col. 6, line 40 – col. 7, line 10 as teaching this feature. However, a careful review of this passage reveals a completely divergent approach, in which Millington (in advance of user selection) limits the user's choices to certain "enabled" symbols and disabling the rest.

Finally, the applied art does not teach "facilitating selection of a desired one of the proposed objects." As Millington particularly lacks the "proposed linguistic objects" as claimed, Millington necessarily fails to disclose the operation of "facilitating selection

of a desired one of the proposed objects."

In view of the foregoing, the applied art fails to teach the features of claim 66. And, even without considering any individual merits of dependent claims 67-69, 71, 74-75, these claims are distinguished from the applied art because they depend from independent claims that are distinguished as discussed above.[24] Nonetheless, certain features of these dependent claims are noted to further distinguish over the applied art.

As one example (claim 69), the applied art fails to show an estimating operation comprising "for each user-submitted directional input, identifying linguistic object subcomponents within a predetermined angular range thereof according to the predetermined mapping... limiting the estimated subcomponents to those identified." The office action proposes that such features appear in Millington's Fig. 6 items 118, 120, 122, Fig. 2 item 52, and col. 3, lines 32-51. [Office Action: page 10] A careful reading of the cited passage, however, reveals a contradictory teaching than what is claimed. Instead of an angular range, there is always a one-to-one correspondence between the directional input of Millington's user and the resulting selection. Therefore, Millington does not care about a range, and instead does the opposite by matching each user input to a single selection of group or symbol.

According to Millington, a user selects the first letter of the desired destination city by moving the directional input device 26 in the pre-determined direction 62 associated with the group 58 containing the desired letter. This sends a first directional signal from the directional input device 26 to the display device 24. The central position

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[24] If an independent claim is nonobvious under 35 USC 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). MPEP 2143.03.

70 of the group 58 located in the pre-determined direction 62 is then activated. Activation of the central position 70 activates the group 58. If the user wishes to select the symbol 66 located at the central position 70 of the activated group 58, the user sends a selection signal from the directional input device 26 to the display device 24. The selected symbol 66 is then displayed in the type field 52. If the user does not wish to select the symbol 66 located at the central position 70, then the user moves the directional input device 26 in one of the pre-determined directions 62 and thereby sends a second directional signal to the display device 24. The symbol 66 located in the direction relative to the central position 70 associated with the second directional signal is then activated. If the user then sends a selection signal, the activated symbol 66 is selected and is displayed in the type field 52. [Millington: col. 4, line 56 – col. 5, line 9]

Thus, Millington does not teach the claimed feature "for each user-submitted directional input, identifying linguistic object subcomponents within a predetermined angular range..." Nor does Goodman teach this feature, as the office action cited Goodman merely in an effort to show "a processor to weight values for the letters." [Office Action: page 9]

As another example (claim 71), the applied art does not show "responsive to receiving each machine-readable signal representing a user-submitted directional input, displaying a pie wedge indicating a current direction of the directional input tool and a range of linguistic object subcomponents within that range." [Office Action: page 10] The office action proposes that this feature is found in Millington's Fig. 2 and col. 3, lines 32-51. However, this passage is completely silent as to the display of pie wedge as claimed. Rather, a pie wedge would be inconsistent with Millington because

Millington uses a one-to-one matching between directional inputs and symbol groups or symbols, and there would be no need for a pie wedge to show an angular range. [Millington: col. 4, line 56 – col. 5, line 9]

Claims 66-69, 71, 74-75: Suggestion or Motivation

In addition to the reasons given above, the *prima facie* obviousness case is also defective because there has been no suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.[25]

The office action suggests that it would have been obvious to combine Millington and Goodman to "determine a most likely intended-to-be-typed keystrokes [sic]", and cited Goodman's col. 1, lines 60-61. [Office Action: page 9] However, this is merely a recitation of one of Goodman's stated objectives. Although Goodman's stated objective touts the benefit of Goodman's system, motivation is still missing to modify Millington's system by combining it with Goodman's. The office action's purported motivation merely suggests using Goodman's system as taught by Goodman, but lacks any reason to combine or modify references in any way.

Moreover, the proposed modification is insufficient to constitute a *prima facie* obviousness case because it would necessarily change the principle of operation of Millington.[26] In particular, Millington teaches a specific approach that avoids the need

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25 MPEP 2142.

26 *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). MPEP 2143.01.

to estimate symbols selected by a user. This is outlined in Millington's Figs. 2-4; col. 3, line 66 - col. 4, line 5; col. 4, lines 11-39; col. 4, line 56 – col. 5, line 9; col. 5, lines 46-53; col. 6, line 40 – col. 7, line 10. First, Millington provides an eight way button, where each directional arrow corresponds to a pre-determined direction shown on the display device. Second, Millington avoids performing any estimation by forcing Millington's user to positively identify each selected symbol. Third, instead of using estimating user intent, Millington exhibits an approach to specifically avoid having to do any estimation. Specifically, in advance of user selection, Millington limits the user's choices to certain "enabled" symbols and disabling the rest.

Hence, modifying Millington to weight values for the letters (as proposed by the office action) would change the Millington's principle of operation, requiring a substantial redesign and reconstruction of Millington's elements.[27] A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.[28] Furthermore, it is improper to combine references where the references teach away from their combination.[29] Accordingly, the claims are patentable because the required suggestion or motivation to combine references is lacking.

Accordingly, the *prima facie* case of obviousness is lacking since there has been no showing of the legally required suggestion or motivation to modify the reference or to

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27 MPEP 2143.01.

28 *W.L. Gore & Associates, Inc.* v. *Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). MPEP 2141.02

29 *In re Graselli*, 713 F.2d 731, 218 USPQ 769, 779 (Fed. Cir. 1983). MPEP 2145(4).

combine reference teachings.

Claims 66-69, 71, 74-75: Reasonable Expectation of Success

In addition to the reasons stated above, the *prima facie* obviousness case is further defective because the office action failed to show that there would be a reasonable expectation of success in modifying/combining references.[30] The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness.[31] If the examiner does not produce a prima facie case, the applicant is under *no* obligation to submit evidence of nonobviousness.[32] Critically, to establish a *prima facie* case of obviousness, *there must be a reasonable expectation of success.*[33] This reasonable expectation of success must be found in the prior art, not in Applicant's disclosure.[34]

The office action lacks any evidence, allegation, or other mention of the legally required "reasonable expectation of success." Since this mandatory topic is unaddressed by the office action, no *prima facie* case of obviousness has been properly established. Furthermore, an ordinarily skilled artisan would actually have a poor prospect of success in combining Goodman with Millington due to the wholly

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30 MPEP 2142, 2143.02.

31 MPEP 2142.

32 *Id.*

33 MPEP 2143.

34 *In re Vaeck*, 947 F.2d 488, 20 USPQ.2d 1438 (Fed. Cir. 1991). MPEP 2143.

inconsistent approaches taken by the two references, as discussed above in detail.

Claims 66-69, 71, 74-75: Conclusion as to Obviousness

As shown above, then, these claims are patentable since a *prima facie* case of obviousness does not exist. Namely, (1) the applied art fails to teach the features of the claims, (2) there is insufficient motivation to combine/modify references as proposed by the office action, and (3) there is no showing that an ordinarily skilled artisan would have a reasonable expectation of success in making the office action's proposed modification of references.

Subparagraph (v) -- OTHER GROUNDS OF REJECTION

There are none.

CONCLUSION

For the foregoing reasons, the claims in the present application are clearly and patentably distinguished over the cited references. Accordingly, the Examiner should be reversed and ordered to pass the case to issue.

If any fees are required by this submission, an appropriate fee submittal sheet is enclosed herewith. If fees are required yet this sheet is inadvertently missing, or the fees are incorrect in amount, please charge the charge the required fees (or credit any overpayment) to Deposit Account No. 07-1445.

Respectfully submitted,

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CLAIMS APPENDIX

1. A text entry input system, comprising:

a direction selector to individually point in a direction of letters to collectively form an intended linguistic object, where each letter comprises a linguistic object subcomponent;

a collection of linguistic objects;

an output device with a text display area;

a processor, comprising:

a difference calculation module configured to output, for each act of pointing, various letters and associated weight values based upon factors including at least an angular difference between an actual direction indicated by the directional selector and pre-assigned directions of said letters;

an object search engine configured to construct a predicted list of linguistic objects based on the output letters and weight values;

a selection component to facilitate user selection of a desired linguistic object from the predicted list of linguistic objects.

2. The system of Claim 1, further comprising an on-screen keyboard representation of a ring of letters in each writing system.

3. The system of Claim 2, wherein said on-screen keyboard is of any shape selected from a group comprising circle, square, oval and polygon.

The system of Claim 1, further comprising a set of compass point letters, said compass point letters being placed at positions around in a linguistic object selection list, in a separate on-screen compass area, or around said directional selector.

4. The system of Claim 2, wherein said letters have bottoms towards the center of said ring.

5. The system of Claim 2, wherein said letters have an alphabetical order, QWERTY order, or Dvorak order.

6. The system of Claim 2, wherein said letters start at the 12 o'clock or 9 o'clock position.

7. The system of Claim 2, wherein said letters have a moving starting position.

8. The system of Claim 2, wherein said letters have a clockwise or counterclockwise layout.

9. The system of Claim 2, wherein each of said letters occupies different amount of radians depending upon use frequency.

10. The system of Claim 1, wherein a number of characters are printed around said directional selector.

11. The system of Claim 1, wherein said directional selector comprises a joystick or an omni-directional rocker switch.

12. The system of Claim 1, wherein each letter comprises any subcomponent or combination of one or more of the following forming an incomplete part of one of the linguistic objects:

an alphabetic letter, numeric digit, symbol, character;

a sub-word component from a non-English language including one or more strokes, radicals, jamos, kana, punctuation symbols, digits.

13. The system of Claim 1, further comprising at least four buttons independent of said directional selector.

14. The system of Claim 1, further comprising one of the following: a joystick or directional rocker switch.

16. The system of Claim 12, wherein said joystick or omni-directional rocker switch is a component of a multi-function video game controller.

17. The system of Claim 2, wherein said system provides auditory or visual feedback on each movement of said directional selector.

18. The system of Claim 17, wherein said visual feedback is a solid or gradient-fill pie wedge shape appearing on said on-screen keyboard, said pie wedge shape being centered on a current selected direction.

19. The system of Claim 1, wherein said linguistic objects are ordered according to a linguistic model.

20. The system of Claim 19, where said linguistic model includes one or more of:

frequency of occurrence of a linguistic object in formal or conversational written text;

frequency of occurrence of a linguistic object when following a preceding linguistic object or linguistic objects;

proper or common grammar of the surrounding sentence;

application context of current linguistic object entry; and

recency of use or repeated use of the linguistic object by the user or within an application program.

21. The system of Claim 1, wherein said list of predicted linguistic objects are ordered by a combination value of a calculated weighted difference value and a linguistic model.

22. The system of Claim 21, wherein said linguistic model comprises one or more of:

frequency of occurrence of a linguistic object in formal or conversational written text;

frequency of occurrence of a linguistic object when following a preceding linguistic object or linguistic objects;

proper or common grammar of the surrounding sentence;

application context of current linguistic object entry; and

recency of use or repeated use of the linguistic object by the user or within an application program.

23. The system of Claim 21, wherein the linguistic object with the highest combination value is selected by default.

24. The system of Claim 1, wherein the linguistic objects longer than the number of actions of direction selector are included in said list of predicted linguistic objects.

25. The system of Claim 1, further comprising a means for extending a selected linguistic object with completions.

26. The system of Claim 25, wherein said completions are displayed in a pop-up list after a button press or directional input.

27. The system of Claim 1, further comprising a means for precisely selecting said letters of said linguistic object.

28. The system of Claim 1, wherein an exact spelling sequence is displayed in said text display area.

29. The system of Claim 1, wherein the last entered letter is indicated in said exact spelling sequence.

30. The system of Claim 2, wherein the last entered letter is indicated in said on-screen keyboard.

31. The system of Claim 1, further comprising a means to change the last entered letter.

32. A text input method using a directional input device, wherein each direction entered corresponds, directly or indirectly, to one or more linguistic object subcomponents according to a predetermined mapping, said method comprising the steps of:

for each user act of pointing the directional input device, preparing an output of candidate linguistic object subcomponents and associated probability weightings based upon factors including at least an angular difference between directions indicated by the directional input device and pre-assigned directions of said linguistic object subcomponents according to the predetermined mapping;

utilizing the output to construct a list of predicted linguistic objects;

facilitating user selection of a desired linguistic object from said list.

33. The method of Claim 32, the directions indicated by the directional input device comprising angular direction, wherein the angular direction is derived from recording the X-Y offset of the directional input device and converting that offset into an angular notation comprising radians, gradients, or degrees.

34. The method of Claim 33, wherein the conversion is a variation on the standard Cartesian to Polar formula of Angle = arctan(Y/X).

35. The method of Claim 32, wherein the candidate linguistic object subcomponents can be one of any number of adjacent or nearby letters or symbols.

36. The method of Claim 32, further comprising utilizing a linguistic model to order said list of predicted linguistic objects according to likelihood of intended selection by the user.

37. The method of Claim 32, wherein the linguistic objects comprise words and the linguistic object subcomponents comprise letters.

38. (Canceled)

39. (Canceled)

40. The method of Claim 36, wherein the order of said list of predicted linguistic objects is based on a combination of the weightings and the linguistic model.

41. The method of Claim 36, wherein the linguistic model comprises one or more of:

frequency of occurrence of a linguistic object in formal or conversational written text;

frequency of occurrence of a linguistic object when following a preceding linguistic object or linguistic objects;

proper or common grammar of the surrounding sentence;

application context of current linguistic object entry; and

recency of use or repeated use of the linguistic object by the user or within an application program.

42. (Canceled)

43. The method of Claim 32, wherein said directional input device is associated with an on-screen keyboard.

44. The method of Claim 43, wherein said on-screen keyboard comprises a ring of letters, numbers or other symbols.

45. The method of Claim 43, wherein said on-screen keyboard is represented in Polar or Cartesian coordinate system for calculation.

46. The method of Claim 32, wherein construction of said list of predicted linguistic objects includes retrieving linguistic objects from a vocabulary database, and wherein a plurality of linguistic objects stored in said vocabulary database is ordered according to a linguistic model.

47. The method of Claim 46, where said linguistic model comprises one or more of:

frequency of occurrence of a linguistic object in formal or conversational written text;

frequency of occurrence of a linguistic object when following a preceding linguistic object or linguistic objects;

proper or common grammar of the surrounding sentence;

application context of current linguistic object entry; and

recency of use or repeated use of the linguistic object by the user or within an application program.

48. The method of Claim 46, wherein said plurality of linguistic objects is stored in a mixed case format in said vocabulary database.

49. The method of Claim 46, wherein said vocabulary database further comprises a user database which stores linguistic objects added by the user.

50. The method of Claim 49, wherein said linguistic objects added by the user in said user database are ordered by length of linguistic object and recency of use.

51. The method of Claim 46, wherein said vocabulary database further comprises a recency database to support linguistic object prediction based on recency of use.

52. The method of Claim 36, where the order of each linguistic object in the list is based at least in part upon a mathematical function of probability weightings for all linguistic object subcomponents in the linguistic object.

53. The method of Claim 32, where the factors additionally include, for each linguistic object subcomponent, a frequency of use of that linguistic object subcomponent.

54. The method of Claim 32, wherein the user selects a partial linguistic object and continues with more directional inputs.

55. The method of Claim 54, wherein said list of predicted linguistic objects is filtered to only include linguistic objects that begin with said selected partial linguistic object.

56. The method of Claim 32, wherein the user selects an entry from said list of predicted linguistic objects and the highest-ranked linguistic object containing said selected entry remains selected upon the input of additional linguistic object subcomponents until said entry becomes invalid by further addition of linguistic object subcomponents.

57. The method of Claim 32, wherein said directional input device includes a set of buttons.

58. The method of Claim 32, wherein said directional input device includes a joystick or omni-directional rocker switch.

59. The method of Claim 43, wherein said on-screen keyboard further comprises a smart punctuation symbol, said smart punctuation symbol when retrieved is automatically interpreted as a punctuation symbol, diacritic mark or tonal indication at the place in the input sequence where a matching punctuation symbol, diacritic mark or tonal indication occurs in predicted linguistic objects.

60. The method of Claim 32, wherein a set of buttons or a second directional input device can be used alone or with said directional input device, separately or simultaneously, to switch or choose input modes, to change from input to word selection, or to invoke other functions.

61. The method of Claim 32, further comprising the steps of:

invoking an undo means after selecting a linguistic object from said list of predicted linguistic objects; and

re-displaying said list.

62. The method of Claim 32, further comprising the steps of:

selecting a linguistic object from a text message; and

displaying subcomponents of said linguistic object as if said subcomponents had been entered exactly and constructing a predicted list of linguistic objects based on the displayed subcomponents.

63. A text entry input module for use with user interface components including a direction indicator and a output device with a text display area, the text entry input module comprising:

a database of linguistic objects;

a predetermined set of linguistic object subcomponents;

where a predetermined relationship exists between said linguistic object subcomponents and different assigned angular directions of the direction indicator;

a calculation module to apply the predetermined relationship to each user-submitted direction entered via the direction indicator to provide an output, said output including: (1) multiple predicted linguistic object subcomponents including a group of linguistic object subcomponents whose assigned angular directions are nearest the user-submitted directions, and (2) for each predicted linguistic object subcomponent, an associated proximity weighting proportional to an angular difference between the user-submitted direction and the angular direction assigned to the predicted linguistic object subcomponent;

an object search engine configured to utilize the output to retrieve from the database a list of predicted linguistic objects potentially representative of the user-submitted directions;

a linguistic object module programmed to utilize at least one predetermined linguistic model to order said list of potential linguistic objects according to likelihood of intended selection by the user;

a selection component to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects.

64. A text entry input module for use with user interface components including a direction indicator and an output device with a display, the text entry input module comprising:

a vocabulary database of linguistic objects;

a mapping between angular directions of the direction indicator and linguistic object subcomponents;

a calculation module to apply the mapping to each user-submitted direction entered via the direction indicator to provide an output including: multiple potentially user-intended linguistic object subcomponents and associated proximity weightings;

an object search engine configured to retrieve a list of predicted linguistic objects from the vocabulary database based upon said calculation module output;

a linguistic object module programmed to utilize a linguistic model to order said list of predicted linguistic objects according to likelihood of intended selection by the user; and

a selection component to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects.

65. (Canceled)

66. A computer readable storage medium tangibly embodying a program of instructions executable by a digital data processing machine to perform text input operations comprising:

receiving machine-readable signals representing a series of user-submitted directional inputs entered via a directional input tool, the series having an order;

where directional inputs of the directional input tool correspond to different linguistic object subcomponents according to a predetermined mapping;

for each user-submitted directional input, based upon that directional input alone, estimating multiple corresponding subcomponents that the user might have intended by such directional input, and providing a weighting value that the user intended each such subcomponent;

assembling the different ones of the estimated subcomponents to construct multiple different proposed linguistic objects that the user might have intended by the series of directional inputs, where each proposed object includes one estimated subcomponent for each user-submitted directional input, the subcomponents occurring in the proposed object in the same order as the series of user-submitted directional inputs;

facilitating selection of a desired one of the proposed objects.

67. The medium of claim 66, where each linguistic object subcomponent comprises at least one of the following:

an alphabetic letter, numeric digit, symbol, character;

a sub-word component from a non-English language including one or more

strokes, radicals, jamos, kana, punctuation symbols, digits;

a subcomponent or combination of one or more of the foregoing.

68. The medium of claim 66, the assembling operation further comprising:

ordering proposed linguistic objects according to considerations including one or more of the following: presence in a predetermined vocabulary, presence in a user-defined list, frequency of general usage.

69. The medium of claim 66, the estimating operation further comprising:

for each user-submitted directional input, identifying linguistic object subcomponents within a predetermined angular range thereof according to the predetermined mapping;

limiting the estimated subcomponents to those identified.

70. The medium of claim 66, the operation of providing a weighting value comprising at least one of the following:

providing a weighting value for each linguistic object subcomponent according to angular proximity between the subcomponent's corresponding actual user-submitted directional input and the directional input exactly mapped to the subcomponent;

providing a weighting value depending at least in part on frequency of general usage of the subcomponent.

71. The medium of claim 66, the operations further comprising:

responsive to receiving each machine-readable signal representing a user-

submitted directional input, displaying a pie wedge indicating a current direction of the directional input tool and a range of linguistic object subcomponents within that range.

72. The medium of claim 71, the operations further comprising:

narrowing the displayed pie wedge and corresponding range in proportion to magnitude of the directional input.

73. The medium of claim 66, where the predetermined mapping is such that linguistic object subcomponents occupy greater angular ranges responsive to factors including greater frequency of general usage.

74. The medium of claim 66, where the assembling operation further comprises identifying supplemental linguistic objects that contain the proposed linguistic objects and include further subcomponents, and including the supplemental linguistic objects in the proposed linguistic objects.

75. The medium of claim 66, where the assembling operation further comprises ordering the proposed linguistic objects according to one or more of the following: word length, ordinal ranking, weighting value of proposed linguistic object subcomponents, frequency of general usage, recency of use, appearance in a user-defined list.

76. A computer programmed to facilitate operations for text entry, the operations comprising:

by using a joystick having predefined mapping between different actual radial

directions and different text characters, a user sequentially pointing in an intended radial direction toward intended characters of at least part of an intended word;

the computer determining angular similarity between each actual pointing direction and radial directions of different characters in the mapping, and using the determined angular similarity to compute different possible combinations of intended characters that could form the intended word and their associated likelihoods, and presenting a list of potential matching words to the user, where the presentation favors potential matching words according to factors including an aggregate angular similarity of constituent characters of a potential matching word to the actual pointing directions;

the user selecting the intended word from the list;

the computer displaying the selected word in a human-readable message composition display area.

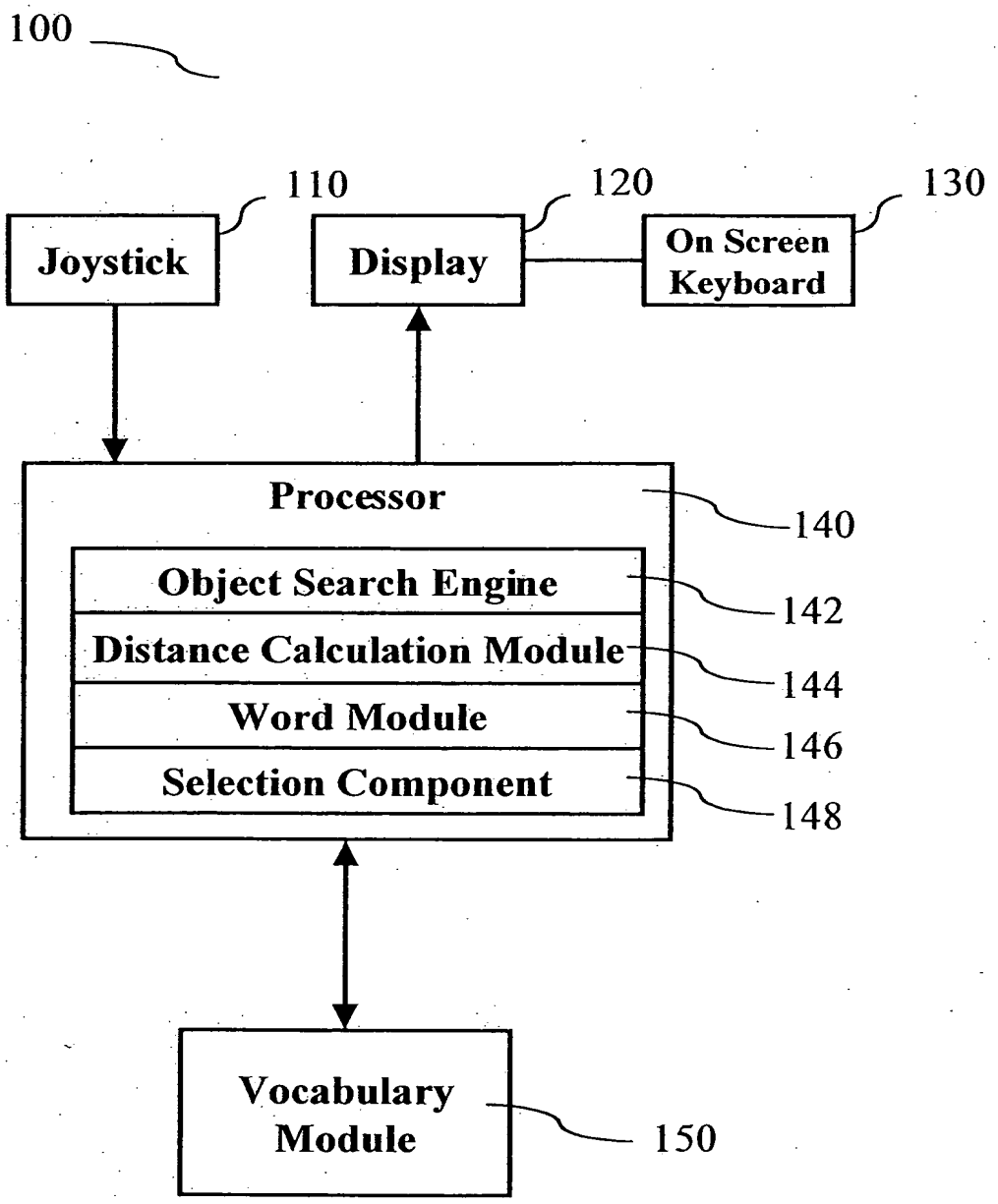
100
110
120
130
Joystick
Display
On Screen Keyboard
Processor
140
Object Search Engine
142
Distance Calculation Module
144
Word Module
146
Selection Component
148
Vocabulary Module
150

FIG. 1

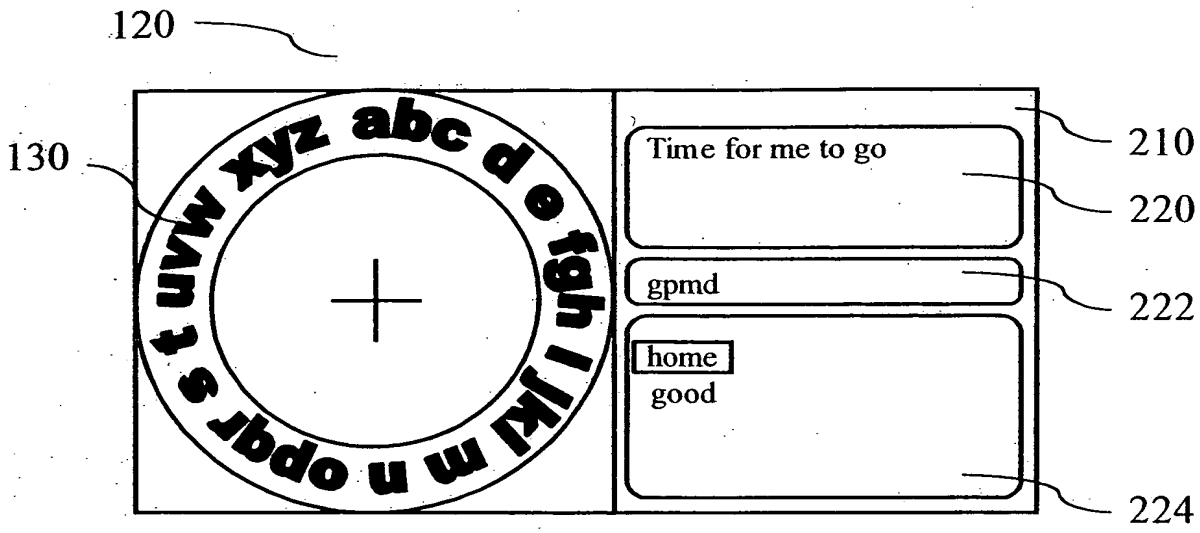

FIG. 2

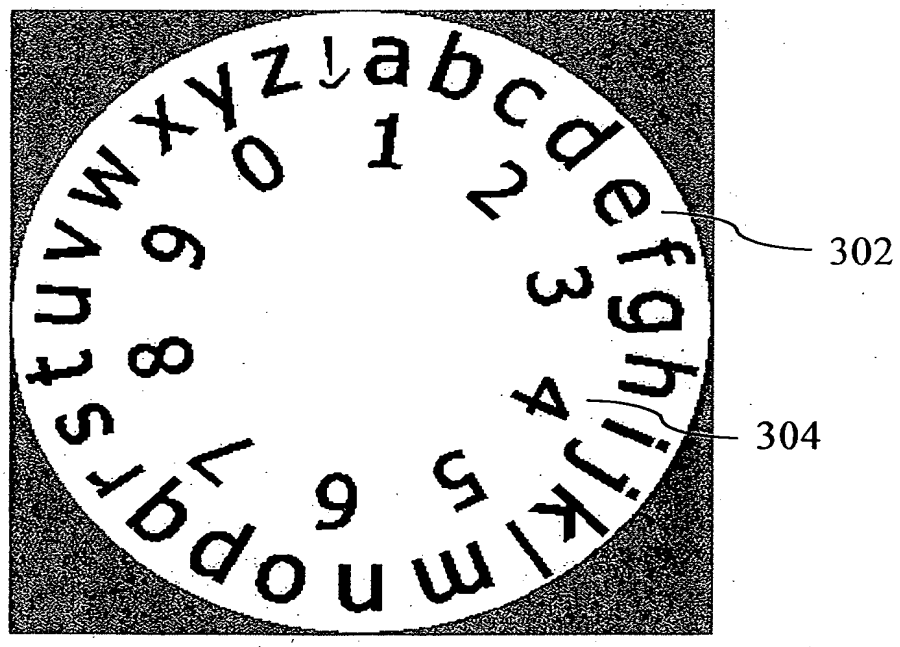

FIG. 3

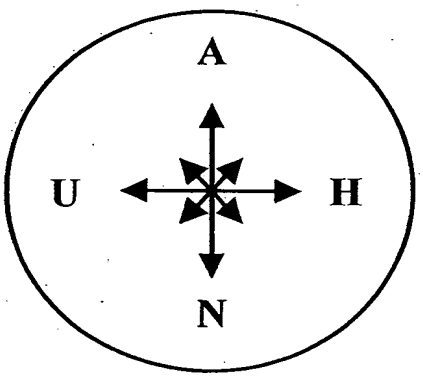

FIG. 4A

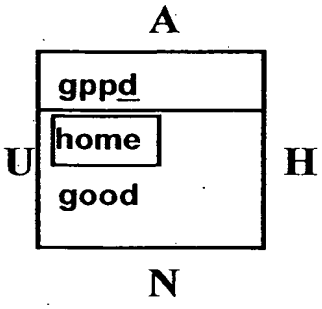

FIG. 4B

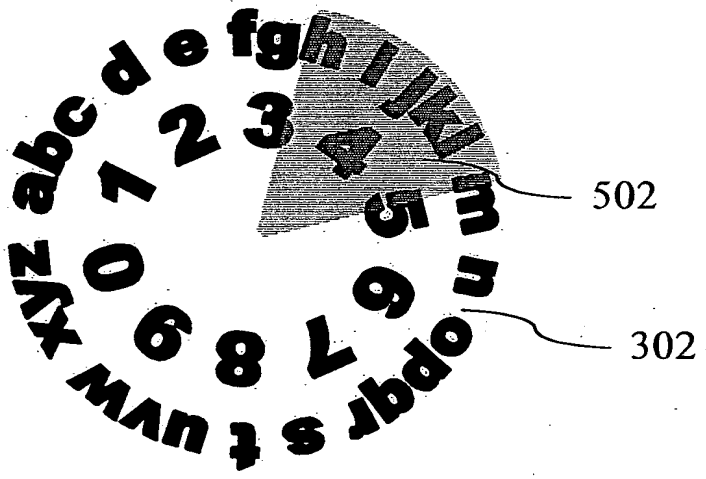

FIG. 5

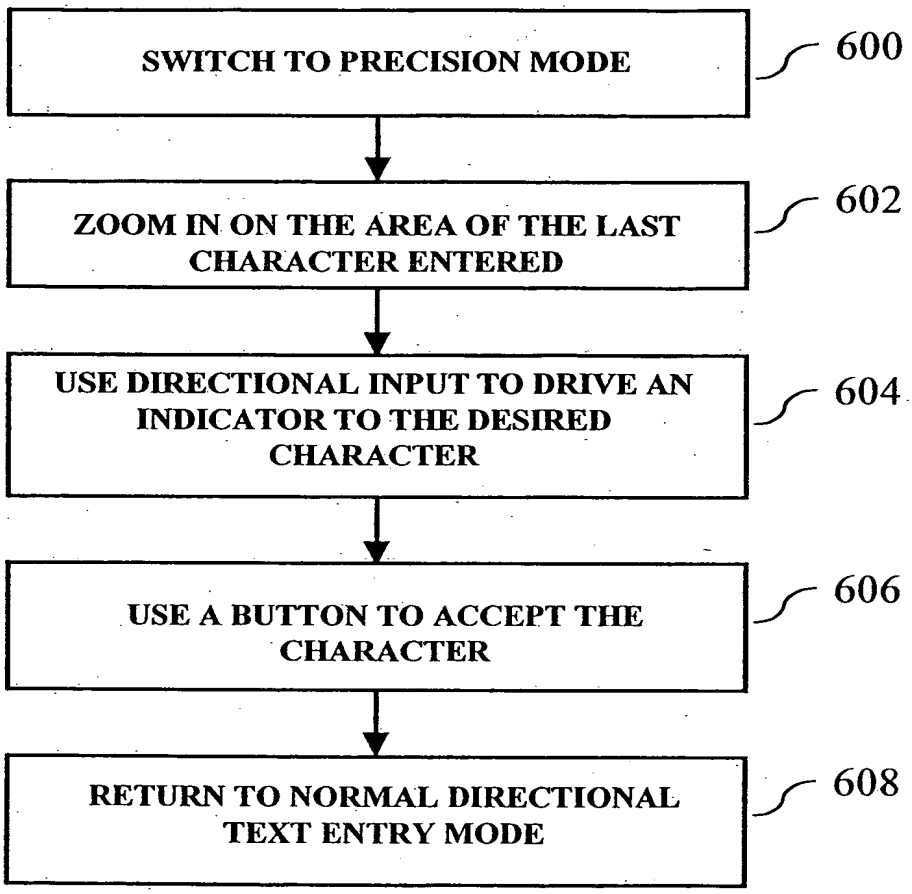
SWITCH TO PRECISION MODE
600
ZOOM IN ON THE AREA OF THE LAST CHARACTER ENTERED
602
USE DIRECTIONAL INPUT TO DRIVE AN INDICATOR TO THE DESIRED CHARACTER
604
USE A BUTTON TO ACCEPT THE CHARACTER
606
RETURN TO NORMAL DIRECTIONAL TEXT ENTRY MODE
608

FIG. 6

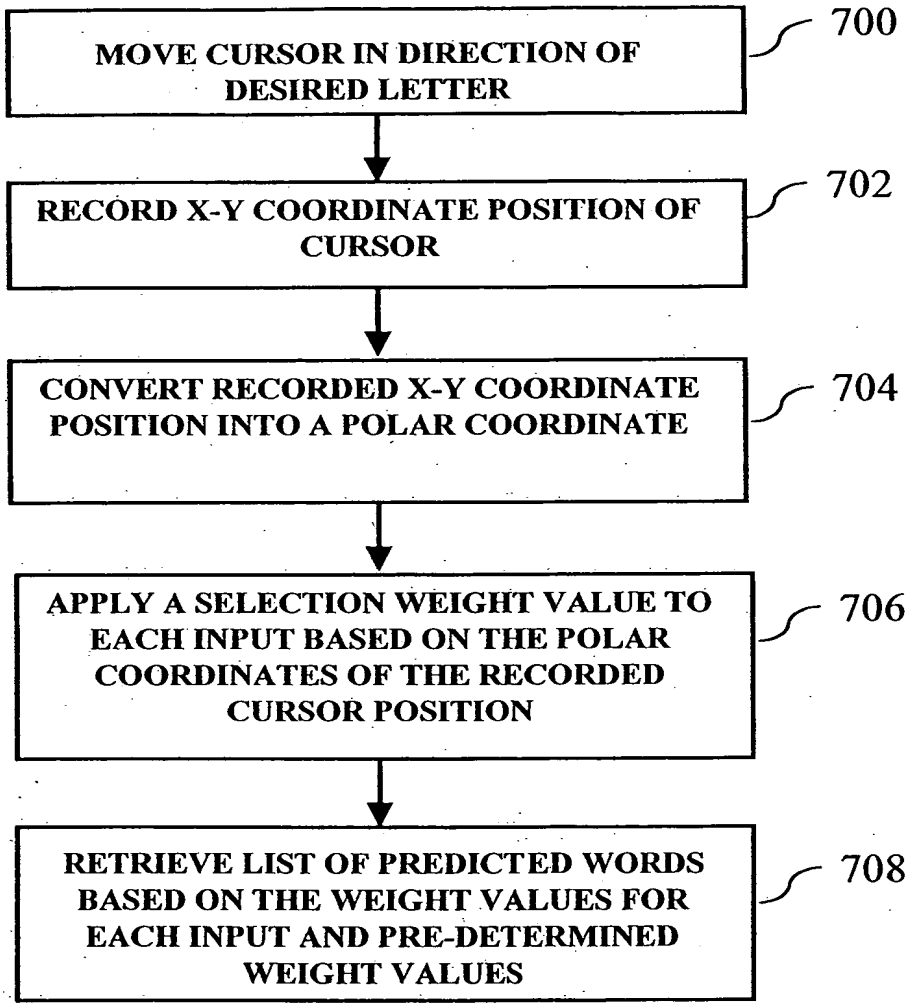
MOVE CURSOR IN DIRECTION OF DESIRED LETTER
700
RECORD X-Y COORDINATE POSITION OF CURSOR
702
CONVERT RECORDED X-Y COORDINATE POSITION INTO A POLAR COORDINATE
704
APPLY A SELECTION WEIGHT VALUE TO EACH INPUT BASED ON THE POLAR COORDINATES OF THE RECORDED CURSOR POSITION
706
RETRIEVE LIST OF PREDICTED WORDS BASED ON THE WEIGHT VALUES FOR EACH INPUT AND PRE-DETERMINED WEIGHT VALUES
708

FIG. 7

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,890	10/01/2003	Michael R. Longe	TEGI0013	5341

22862 7590 04/28/2006

GLENN PATENT GROUP
3475 EDISON WAY, SUITE L
MENLO PARK, CA 94025

ACKNOWLEDGE RECEIPT
MAY - 3 2006
GLENN PATENT GROUP

EXAMINER	
SHAPIRO, LEONID	
ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

GPG
U.S.: ✓ FOREIGN:
DOCKETED: 5/5/06 BY: LAM
ACTION: Final Rejection
DUE DATE: 2mo: 6/28/06; 3mo: 7/28/06
EXT: 1ST 8/28/06 2ND 9/28/06 3RD 10/28/06
DOCKET# TEGI0013 ATTY: DH

Office Action Summary	Application No.	Applicant(s)	
	10/677,890	LONGE ET AL.	
	Examiner	Art Unit	
	Leonid Shapiro	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37,40,41,43-64 and 66-76* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37,40-41,43-64,66-76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 October 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the newly introduced limitation of independent claims 1, 32, 63: "**difference** calculation module ... including at least an **angular difference** between an actual direction of pointing and **pre-assigned directions of letters**", limitation of claim 70: "providing a weighting value for each linguistic object subcomponent according to angular proximity between the subcomponent's corresponding actual user-submitted directional' input and the directional input exactly mapped to the subcomponent" and limitation of claims 72-73: "narrowing or occupy greater displayed pie wedge and corresponding range in proportion to magnitude of the directional input or frequency of general usage" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The newly introduced limitation of independent claims 1, 32, 63: "**difference** calculation module ... including at least an **angular difference** between an actual direction of pointing and **pre-assigned directions of letters**", limitation of claim 70: "providing a weighting value for each linguistic object subcomponent according to angular proximity between the subcomponent's corresponding actual user-submitted directional input and the directional input exactly mapped to the subcomponent" and limitation of claims 72-73: "narrowing or occupy greater displayed pie wedge and corresponding range in proportion to magnitude of the directional input or frequency of general usage" are not disclosed in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> **The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the**

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-37, 40-41, 43-63, 70, 72-73, 76 are rejected under 35 U.S.C. 112, first paragraph, as new matter situation. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The newly introduced limitation of independent claims 1, 63: "**difference** calculation module ... including at least an **angular difference** between an actual direction of pointing and **pre-assigned directions of letters**", the newly introduced limitation of independent claim 32: "...an **angular difference** between an actual direction of pointing and **pre-assigned directions of letters**", the newly introduced limitation of claim 70: "providing a weighting value for each linguistic object subcomponent according to angular proximity between the subcomponent's corresponding actual user-submitted directional input and the directional input exactly mapped to the subcomponent" and the newly introduced limitation of claims 72-73: "narrowing or occupy greater displayed pie wedge and corresponding range in proportion to magnitude of the directional input or frequency of general usage" are new matters, not disclosed in the specification or Figures.

As to claim 76, the newly introduced limitation of independent claim 76: "**determined angular similarity**" is not disclosed in the specification or Figures.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-37, 40-41, 43-63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear how to introduce pre-assigned directions of letters without disclosing where is the starting direction in the newly introduced limitation of independent claims 1, 63: "**difference** calculation module ... including at least an **angular difference** between an actual direction of pointing and **pre-assigned directions of letters**" and the newly introduced limitation of independent claim 32: "...an **angular difference** between an actual direction of pointing and **pre-assigned directions of letters**" ?

Since newly introduced limitation was not disclosed and not clear, there will be no rejection of claims 1-63, 76 on prior art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe, USPN 6,567,072 in view of Goodman et al., USPN 6,654,733 B1 and Masui, USPN 6,002,390.

Watanabe describes a text entry input module for use with user interface components [character input device 1] including a directional indicator [direction indicating device 2] plus one or more buttons or equivalent user input means [keys 4 – 7] and an output device [display device 9] with a text display area [function display unit 10]. Watanabe, col. 7, lines 20 – 44; and figure 1. Watanabe teaches a vocabulary database of linguistic objects; a mapping between angular directions of the direction indicator and linguistic object subcomponents [character sets 11 – 17 etc.]. Watanabe, col. 8, lines 5 – 24; and figures 3 & 4. Note that the specification teaches that "The linguistic objects... include but are not limit to: words, phrases, abbreviations, chat slang, emoticons, user IDs, URLs, non-English (such as Chinese or Japanese) characters." Specification, page. 8. Watanabe teaches a processor [CPU 18]. Watanabe, col. 11, lines 25 – 36; and figure 11. Watanabe teaches that the processor comprises an object search engine configured to utilize the output to retrieve from the dictionary a list of predicted linguistic objects potentially representative of the user-submitted directions. Watanabe, col. 9, lines 1 – 17. The processor calculates a distance to find letters in the pointing direction with the distance calculation module. Watanabe, col. 8, lines 24 – 35; and figures 5A – 5C.

Watanabe does not disclose a calculation module to apply mapping to each user-submitted direction entered via the direction indicator to provide an output, said output including: multiple predicted linguistic object subcomponents and, for each predicted linguistic object subcomponent, an associated proximity weighting; a linguistic object module

programmed to utilize at least one predetermined linguistic model to order said list of potential linguistic objects according to likelihood of intended selection by the user; a selection component to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects.

Goodman et al. teaches a calculation module (See Fig. 1, item 21) to apply mapping to each user-submitted direction entered via the direction indicator to provide an output, said output including: multiple predicted linguistic object subcomponents and, for each predicted linguistic object subcomponent, an associated proximity weighting; a linguistic object module programmed to utilize at least one predetermined linguistic model to order said list of potential linguistic objects according to likelihood of intended selection by the user (See Fig. 3, item 204, Col. 9, Lines 21-62)

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Goodman et al. into Watanabe system in order to determine a most likely intended-to-be-typed keystrokes (See Col. 1, Line 60-61 in the Goodman et al. reference).

Watanabe and Goodman et al. do not disclose a selection component to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects.

Masui teaches a selection component to facilitate user selection of a desired linguistic object from said ordered list of predicted linguistic objects (See Fig. 7, items PDMj, A, Col. 8, Lines 31-37).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Masui into Goodman et al. and Watanabe system in order to select candidate words (See Col. 1, Line 55-57 in the Masui reference).

6. Claims 66-69,71,74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Millington, USPN 6,765,554 in view of Goodman et al., USPN 6,654,733.

As to claim 66, Millington teaches a computer readable storage medium tangibly embodying a program of instructions executable by a digital data processing machine to perform text input operations (See Fig. 5, item CPU22, Col. 4, Lines 6-10 and Col. 2, Lines 3-46) comprising:

receiving machine-readable signals representing a series of user submitted directional inputs entered via a directional input tool (See Fig. 6, items 118,120, 126, Col. 4, Lines 56-59), the series having an order;

where directional inputs of the directional input tool correspond to different linguistic object subcomponents according to predetermined mapping (See Fig. 6, items 118,120, 126, Col. 4, Lines 56-59);

for each user-submitted directional input, based upon that directional input alone, estimating multiple corresponding subcomponents that the user might have intended by such directional input, and providing a weighting value that the user intended each such subcomponent (See Figs. 5-6, items 52,66,100, Col. 5, Lines 10-27);

assembling the different ones of me estimated subcomponents to construct multiple different proposed linquistic objects that the user might have intended by the series of directional inputs, where each proposed object includes one estimated subcomponent for each user-submitted directional input, the subcomponents occurring in me proposed object in the same order as the series of user-submitted directional inputs (See Figs. 5-6, items 28, 104, 128, from Col. 6, Line 40 to Col. 7, Line 10);

facilitating selection of a desired one of proposed objects (See Fig. 2, items 26,52,66, Col. 5, Lines 29-37).

Millington does not disclose providing a weighting value that user intended each such subcomponent.

Goodman et al. teaches processor (See Fig. 1, item 21) to weight values for the letters (See Fig. 3, item 204, Lines 21-62).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Goodman et al. into Millington system in order to determine a most likely intended-to-be-typed keystrokes (See Col. 1, Lines 60-61 in the Goodman reference).

As to claim 67, Millington teaches each linguistic object subcomponent comprises an alphabetic letter (See Fig. 6, items A, B, C, D...).

As to claim 68, Millington teaches ordering proposed linguistic objects according presence in user-defined list (alphabetized list) (See Col. 5, Lines 24-28).

As to claim 69, Millington teaches for each user-submitted directional input identifying linguistic object subcomponents within a predetermined angular range thereof according to the predetermined mapping (See Fig. 6, items 118,120,122);

limiting the estimated subcomponents to those identified (See Fig. 2, item 52, Col. 3, Lines 32-51).

As to claim 71, Millington teaches user-submitted directional input, displaying a pie wedge indicating a current direction of the directional input tool and a range of linguistic object subcomponents within that range (See Fig. 2, Col. 3, Lines 32-51).

As to claim 74, Millington teaches identifying supplemental linguistic objects that contain the proposed linguistic objects and include further subcomponents, and including the supplemental linguistic objects in the proposed linguistic objects (See Fig. 2, items 24,52, Col. 5, Lines 20-37).

As to claim 75, Millington teaches the assembling operation further comprises ordering the proposed linguistic objects according to the alphabetized list of city names (See Col. 5, Lines 20-37).

Response to Arguments

7. Applicant's arguments with respect to claims 1-37,40-41,43-63,66-76 have been considered but are moot in view of the new ground(s) of rejection.

8. In remarks Applicant's mentioned claim 64 only in the Headers, but not in the Arguments. Since Applicant's didn't argue rejection of claim 64, previous rejection of claim 64 is maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Telephone Inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LS
04.11.06

RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited	Application/Control No. 10/677,890	Applicant(s)/Patent Under Reexamination LONGE ET AL.	
	Examiner Leonid Shapiro	Art Unit 2629	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,765,554	07-2004	Millington, Jeffrey Alan	345/156
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.